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## *An Account of the Plan, Objects, and Progress of the International Association for obtaining a Uniform Decimal System of Measures, Weights, and Coins. By* SAMUEL BROWN, F.R.G.S., F.S.S.

[Read at the Meeting of the National Association for the Promotion of Social Science, held at Liverpool, 1858.]

THE Great Exhibition of 1851, however fruitful it was in direct results beneficial to the trade and commerce of this country, has indirectly produced greater consequences still, by leading to the discussion of questions in which the common interests of all the nations of Europe are concerned.

Scientific and enlightened men from all countries were enabled to consult together on many topics which had hitherto been considered as the imaginary schemes of isolated individuals, and which, though conducive to the best interests of humanity and the progress of civilisation, failed for want of co-operation and the means of communicating with kindred minds in other countries. The various congresses which have been held in Brussels, Paris, and Vienna, for statistical, scientific, or benevolent objects, nearly all trace their origin to that wonderful Exhibition, which gave as great a stimulus to the intellectual progress as it did to the commercial intercourse of all nations.

From the vast variety of products collected from all the regions of the earth, in which both values and quantities were reckoned by all sorts of different standards, the want of some uniform system of estimation and measurement soon became strikingly apparent. What had been hitherto considered by some men as a mere philosophical dream was here a commercial necessity. To compare the products of different countries together, the merchant or manufacturer was obliged to reduce the complicated monetary values, or the weights and measures of so many different countries, to the system of his own. It may be safely said, that a very large part of the advantages to be derived from the Exhibition was lost to thousands, who, though qualified by experience to understand the skill and labour expended in the productions of foreign countries, were not accustomed to the task of translating foreign monies or of reducing foreign weights and measures to our own. So strongly was this felt, that, at the close of the Exhibition, the Society of Arts, which had been instrumental mainly in forming this magnificent collection of the world's industry, presented a memorial to the Lords Commissioners of Her Majesty's Treasury, expressing the satisfaction with which the Memorialists had heard that Her Majesty's Government had under their consideration the question of introducing into this country a system of decimal coins, weights, and measures, and urging how important such a step would be in advancing the arts, manufactures, and commerce of the country. They pointed out how the growing intelligence and education of every people are sweeping away those feelings of personal antipathy which formerly existed, and how much this beneficent result would be increased by facilitating international relations; that a uniformity in measures, weights, and coins, would be of the utmost importance to commerce, and, in measures and weights especially, would greatly facilitate scientific research. They submitted it, as a matter of grave consideration, whether, in introducing a change to a decimal system of coins, weights, and measures, some arrangements might not be made with neighbouring nations for the adoption of a uniform system throughout the world; that, sooner or later, such a system would be loudly called for by different nations, and the inconvenience of a second change might be obviated by a little judicious forethought; that it was worthy of this country, that had inaugurated "unrestricted commerce, unrestricted navigation, and which invites, by its exhibitions and by its policy, the most unrestricted competition," to make the first advances towards such a glorious act; and that there was nothing impossible in the idea, since several nations on the continent of Europe have already the same coinage, and the metrical system of weights and measures is still more widely adopted. This memorial was highly creditable to the Society which had taken so active a part in that great undertaking, and which could not but be aware, by experience, both of the necessity and advantage of the change proposed. In the Exhibition itself the subject had not been overlooked. James Yates, Esq., F.R.S., to whose unwearied advocacy and talented writings it is owing that the cause has within the last few years made so great a progress in this country, had drawn the attention of M. Peut, the able editor of *La Patrie* (who, at the Peace Congress held at

Paris in 1849, had made an eloquent address on the propriety of aiming at the uniformity of weights, measures, coinage, and postal duties, as one of the most efficient means of carrying out the objects of that congress), to the good opportunity afforded by the Great Exhibition of making known the metrical system more fully in this country. His appeal, made public by M. Peut, in *La Patrie,* was responded to by individual exhibitors and by the Government of France, and complete sets of the measures, weights, and coins of the metrical system were exhibited in the Crystal Palace. One set was purchased by Henry Johnston, Esq., and presented to the Society of Arts, in whose museum it now remains. The Academy of Science and Arts at Mâcon, and the Chamber of Commerce of the Department of Saône and Loire, sent M. de Vinsac and M. Carteron, President of the Academy, to press upon the leading members of the Juries of the Great Exhibition the vast importance of a uniform system of measures, weights, and coins, and especially the advantages to commerce and science if the metrical system were generally introduced. Though unsuccessful in their direct object with the British Government, there can be no doubt that these gentlemen excited the attention of many influential and commercial men to the subject, and sowed the seeds of future good.

The interest of this question, thus excited, was not allowed to drop. In 1853, a Statistical Congress was held at Brussels, at which the representatives of the principal Governments of Europe, and a very large number of scientific and practical men, were assembled. The importance of a uniform system of measures, weights, and coins, could not but force itself on the attention of men who, in studying the comparative statistics of foreign countries, would find their labour vastly increased by the incongruous weights, measures, and values, in which commercial products or the general statistics of different countries are expressed. As the subject was not one for discussion in the original programme, no general uniform system was decided on; but a recommendation was agreed to, that in the statistical tables of countries not possessing the metrical system, a column should be added indicating the metrical reduction of weights and measures.

Two years afterwards, viz., in 1855, the second meeting of the Statistical Congress was held in Paris, and as the "Paris Exhibition of the Manufacturing Industry of all Nations" took place in the same year, advantage was taken of this doubly-favourable opportunity again to bring this subject prominently forward; and as the result was the establishment of the Society whose plan, objects, and progress I have now briefly to lay before this meeting, the steps taken may be explained a little more in detail.

A circular, dated 30th August, 1855, signed by seven members of the House of Commons, and six other gentlemen, was sent out, principally to the commissioners or jurymen of the Paris Universal Exhibition, or to the members of the Statistical Congress, then assembled at Paris, with the view of eliciting information on the various systems of coins, weights, and measures prevalent in different countries, and their relation to the English system, and on the best means of obtaining a uniform international system for all countries, and of ascertaining the views of the parties addressed as to the difficulties to be surmounted in effecting this end. The circular was sent out by Mr. Yates; and the answers returned—coming from such high authorities, and concurring, as they do, almost entirely in the practicability and desirableness of a uniform decimal system for all nations—will be read with the greatest interest. They will be found in the Appendix to Mr. Yates' *Narrative of the Origin and Formation of the Association,* now alluded to, which was published in 1856. Lord Monteagle, in his reply, suggested that in the questions addressed to the natives of countries where such changes had already been effected, they should be requested to give a statement of any inconveniences resulting from the first alteration, and the precautions taken either to avert or to lessen such inconveniences; and, where possible, to obtain copies of the laws and ordinances promulgated to give effect to the change—valuable suggestions not neglected by Mr. Yates. Other replies contained the history of the metrical system and its introduction into various countries, together with the opinions of the writers on the advantages of a uniform system, and the means of surmounting the difficulties of its introduction in any country. They formed a valuable collection of practical suggestions, and gave great encouragement to proceed to active measures.

A few days after the issuing of this circular, viz., on the 10th of September, 1855, a discussion took place on the circular letter at the Society of Political Economists in Paris, at which Mr. Yates ably introduced the subject, and representatives from several countries in Europe carried on a very animated and interesting debate. Amongst the speakers were M. Vattemarre, M. Visschers of Brussels, Mr. Sumner of the United States, M. Berg of Stockholm, M. Cogels of Antwerp, and MM. Garnier, Peut, and Horace Say, of Paris; and the general conclusion was, amongst these eminent and well-known writers, that the uniformity suggested was not merely desirable in theory, but proved by experience to be feasible in practice.

In the Statistical Congress itself, an important resolution was proposed by M. Hippolyte Peut, and carried, after a debate in which many of the great political economists or government officials present took part. It was ably supported, amongst others, by the Vice-President of the Congress, Baron Charles Dupin, formerly Minister of Agriculture, Commerce, and Public Works, whose elaborate writings are so well-known. M. Peut's resolution was to the effect that the Congress, considering how much the adoption by the different nations of a uniform system of measures, weights, and coins, would facilitate the comparative study of the statistics of different countries, resolves, "that it is desirable to put such a uniform system into energetic practice."

The members of the International Jury of the Universal Exhibition in Paris, or commissioners sent by their respective Governments to this Exhibition, had likewise made a declaration of their deliberate opinion, that one of the methods best adapted to accelerate that happy movement, which brings all nations together in the paths of their industry, would be the adoption of a universal system of weights and measures; that, if this uniform system were decimal, a large portion of valuable time would be saved to all persons engaged in industrial or commercial pursuits; that the saving of time would be still greater, if the different units denoting length, surface, bulk, weight, and money, were deducible from each other, according to decimal relations between their elementary constituents; and that the names by which the units were distinguished in different countries would be of no importance, since, in the greater number of cases, the old names would be retained, without difficulty, for the new units.

Other steps, which had been taken recently in different countries, showing the growing interest with which this important question was regarded—such as the petition to Congress of citizens of the United States residing in Paris; the memorial to Congress from the American Geographical and Statistical Society; the introduction into the Zollverein of Germany of a weight exactly equal to 50 kilogrammes of France; the metrical system established by law in Frankfort; the interchangeable monetary system of the smaller States of Germany, though the coins might issue from different mints; and the strong expression, in favour of metrical coinage, of the delegates assembled at Vienna to devise a monetary system for all Germany; not to mention the discussion going on on the necessity of some simplification, on the decimal basis, of the weights, measures and coins, in this country—all combined to encourage the formation of an Association which would unite in one purpose the enlightened men who, in different countries of Europe and America, were striving with isolated efforts, and would give to their exertions unity and strength. Accordingly, at the close of the Statistical Congress, two private meetings were held, preliminary to a full and important assembly on the 24th September, 1855, at which the commissioners of the different countries, and the members of the several juries connected with the Great Exhibition, were invited to attend. It might be invidious to mention English names, when men of all countries concurred so heartily in the work; about 150 persons, representatives of the Governments, the science, the commerce, or the intellectual progress, of the greater part of Europe and America, were present. Baron James de Rothschild, the head of the greatest European banking house, presided, and his address on the occasion pithily and eloquently summed up the advantages of the system proposed.

After this address, resolutions, read by M. Peut, were debated, and, after some discussion, unanimously passed. They referred to the resolution of the International Statistical Congress, in 1853; of the Statistical Congress, at Paris, just held in 1855; to the address, signed by the members of the International Jury, and by the commissioners of the various Governments, at the Universal Exhibition, at Paris; to the memorial to the Congress of the United States, presented by the American Geographical and Statistical Society; and to the efforts made by several great States, especially by the Zollverein of Germany, to arrive at a uniform system of money, weights, and measures; and it was determined, thereupon, to establish an International Association, composed of members, chosen from the different civilised nations, who should engage to devote themselves—each in his own country, by means of committees appointed for this purpose, and corresponding with one another—to the establishment, in all civilised countries, of a uniform decimal system of weights and measures, and, as far as possible, of monies. The second resolution merely provided that all discussion, beside the special object of the Association, should be interdicted—no doubt intended for the purpose of disabusing foreign Governments of the idea that the Association might be perverted to any political objects. The members present signed their names, classed under their respective countries; and a vice-president was appointed for each country. The nucleus of the branch committees was thus formed.

Two subsequent meetings were held, on the 16th October and 17th November, at which the plan of the Association was matured. It consisted of

1. The central society, called the International Association, for obtaining a uniform decimal system of measures, weights, and coins. Its direction comprised a president, vice-presidents, nominated from different countries; a central committee, consisting, as far as possible, of two members of each country; and secretaries for England, France, and the United States.
2. Branch societies, consisting of vice-presidents, committee, and members.

The French branch society, and the branch society for Great Britain and Ireland, were formed on the spot. The names of the vice-presidents, and of the members who gave in their adherence, comprise many of the most distinguished for their efforts in the cause of education and social progress in both countries. In proof of this assertion, it will be sufficient to point out amongst the vice-presidents or members of the British Society, the Archbishop of Dublin, the Earl of Shaftesbury, and Viscount Ebrington, who took a most active and influential part in the preliminary meetings, Mr. J. B. Smith, M.P., Mr. James Yates, F.R.S., Mr. Babbage, Mr. Chadwick, Mr. Henry Cole, Mr. Fairbairn, Dr. Farr, Sir Charles Fox, Dr. Hodgkin, Professors Key, Leoni Levi, Marks, Owen, &c. Considering the very different aspects in which the question might be viewed in different countries, and the various constitutions on which branch societies might be formed, it was wisely resolved to hamper them as little as possible with fixed rules or regulations. It was considered to be the most judicious course to leave to the committees, appointed by the members, the task of recommending the laws and regulations by which the branch society could most effectually accomplish the end in view, and attract the notice of the public. A few suggestions were offered for consideration, so that all might work with unity and effect in promoting the common cause; and these, in fact, constitute the objects which each branch was to pursue, at the times and in the manner which might be deemed most advantageous. Thus, the invidious feeling of foreign dictation was avoided, and it seemed probable that both harmony and strength would be given to the operations of the central Association.

(*To be continued.*)